

AGENDA FOR THE TWENTY-SECOND PACIFIC CLIMATE WORKSHOP

**Asilomar State Conference Grounds, Pacific Grove, California
26-29 March 2006**

PACLIM is a multidisciplinary workshop that broadly addresses the climatic phenomena occurring in the eastern Pacific Ocean and western North America. The purpose of the workshop is to understand climate effects in this region by bringing together specialists from diverse fields including physical, social, and biological sciences. Time scales from weather to the Quaternary are addressed in oral and poster presentations.

The theme of the 2006 PACLIM workshop addresses the many tools used to understand drought. The remainder of the meeting is devoted to a wide range of climate-related topics.

The atmosphere of the workshop is intentionally informal, and room and board are provided for many of the participants. This year, the workshop was organized by representatives of the U.S. Geological Survey and U.S. Forest Service. The funding and other sources of support come from several agencies both public and private:

The CALFED Bay-Delta Science Program: **Steve Ford**
The Desert Research Institute: **Chris Maples**
The U.S. Geological Survey Geologic Discipline: **Tom Armstrong**
The U.S. Geological Survey Water Resources Discipline: **Robert Mason**
The U.S. Naval Postgraduate School: **Tom Murphree**

SUNDAY NIGHT, March 26th

Moderator: Scott Starratt

CURRENT EVENTS

SUNDAY AFTERNOON REGISTRATION

600-700	DINNER
700-715	OPENING REMARKS Scott Starratt (USGS, Menlo Park)
715-745	WESTERN CLIMATE UPDATE: PACLIM YEAR 2005-2006 Kelly Redmond (WRCC)
745-815	WATER YEAR 2006 IN NORTHERN CALIFORNIA: THE HOLIDAY

SEASON MONSOON
Maury Roos (California DWR)

815-845 DISCUSSION OF PACLIM'S FUTURE– Meeting schedule, proceedings changes, website, future topics

845-1000 POSTERS AND SOCIALIZING

MONDAY MORNING, March 27th

Moderator: Scott Starratt

SPECIAL SESSION: EPIC DROUGHTS OF THE LAST 2,000 YEARS

730-830 BREAKFAST

830-845 INTRODUCTORY REMARKS
Scott Starratt (USGS, Menlo Park)

845-915 MIGRATIONS OF WESTERN NATIVE AMERICANS AND THE
FALL OF CAHOKIA – RESPONSES TO MIDDLE TWELFTH AND
LATE THIRTEENTH CENTURY DROUGHT?
Larry Benson (USGS, Boulder)

915-945 TREE-RING RECONSTRUCTIONS OF NORTH AMERICAN
DROUGHT: THE CURRENT STATE AND WHERE DO WE GO
FROM HERE?
Edward Cook (LDEO)

945-1015 WESTERN CLIMATE IN MEDIEVAL TIME: TROPICAL AND
GLOBAL CONNECTIONS TO THE GREAT CALIFORNIA
DROUGHTS
Nicholas Graham (UCSD-SIO) and Malcolm Hughes (LTRR)

1015-1030 BREAK

1030-1100 CONTINUOUS RECORDS OF DROUGHT VARIABILITY AND
POSSIBLE CAUSES FROM SOUTHERN CALIFORNIA AND THE
SIERRA NEVADA
Glen MacDonald (UCLA)

1100-1130 DROUGHTS, FOREST FIRES, AND EROSION IN THE NORTHERN
U.S.A. ROCKIES DURING THE LAST TWO MILLENNIA
Jennifer Pierce (Boise State University) and Grant Meyer (University of
New Mexico)

1130-1200 EXTENDED DROUGHTS IN THE GREAT BASIN IN THE LAST
TWO MILLENNIA RECONSTRUCTED FROM POLLEN RECORDS
Scott Mensing (University of Nevada, Reno)

1200-100 LUNCH

MONDAY AFTERNOON, March 27th

Moderator: John Barron

SPECIAL SESSION: EPIC DROUGHTS OF THE LAST 2,000 YEARS

100-130 THE MEDIEVAL DROUGHTS HYPOTHESIS: A MIDTERM
EVALUATION
Terry Jones (California Polytechnic State University)

130-200 CLIMATE CHANGE AT A SNAIL'S PACE: PALEOESCARGOT
REGISTER PAST CLIMATE
Saxon Sharpe (DRI)

200-230 CALIFORNIA PRECIPITATION HISTORY RECONSTRUCTED
FROM THE NETWORK OF BLUE OAK CHRONOLOGIES
David Stahle (University of Arkansas), R. Daniel Griffin (University of
Arkansas), and David Meko (LTRR)

230-300 EPIC DROUGHT IN THE INTERMONTANE WEST: NEW FINDINGS
FROM THE TRANS-SIERRA AND THE NORTHERN ROCKIES
Scott Stine (CSUEB)

300-330 BREAK

330-400 PALEO-VEGETATION EVIDENCE FOR PERIODIC DROUGHT IN
THE GREAT BASIN
Robin Tausch (USDA Forest Service) and Cheryl Nowak (USDA Forest
Service)

400-430 COLORADO DROUGHT: PAST AND PRESENT
Connie Woodhouse (NCDC)

430-500 HOLOCENE DROUGHT VARIABILITY IN THE NORTHERN
ROCKY MOUNTAINS: A HIGH-RESOLUTION MULTI-PROXY
RECONSTRUCTION OF PAST LAKE LEVELS FROM FOY LAKE,
MONTANA
Jeffery Stone (University of Nebraska), Sherilyn Fritz (University of
Nebraska), and Lora Stevens (CSULB)

600-700 DINNER

MONDAY EVENING, March 27th**Moderator: Connie Millar**

700-800 PREDICTING CLIMATE CHANGE ON A GREEN PLANET: THE
 DAUNTING CHALLENGE
 John Harte (U.C. Berkeley)

800-1000 POSTERS AND SOCIALIZING

TUESDAY MORNING, March 28th**Moderator: Connie Millar**

SPECIAL SESSION: EPIC DROUGHTS OF THE LAST 2,000 YEARS

730-830 BREAKFAST

830-900 MULTI-BASIN DROUGHT AND ARIZONA WATER SUPPLY – A
 TREE-RING PERSPECTIVE
 David Meko (LTRR), Katherine Hirschboeck (LTRR), Elzbieta
 Czyzowska (LTRR), Jennifer Lee (LTRR), and Kiyomi Morino (LTRR)

900-930 DROUGHT VARIABILITY CONTRASTS BETWEEN MONTANE
 AND ARID PARTS OF THE WESTERN UNITED STATES
 Hugo Hidalgo (UCSD-SIO), Dan Cayan (UCSD-SIO), and Michael
 Dettinger (USGS)

930-1000 ASSOCIATIONS OF MULTI-DECADAL SEA SURFACE
 TEMPERATURE VARIABILITY WITH U.S. DROUGHT
 Greg McCabe (USGS, Denver), Julio Betancourt (USGS, Tucson),
 Stephen Gray (USGS, Tucson), Michael Palecki (Illinois State Water
 Survey), and Hugo Hidalgo (UCSD-SIO)

1000-1030 BREAK

1030-1100 A CLIMATE MODEL PERSPECTIVE ON DROUGHT IN THE
 WESTERN U.S.
 David Pierce (UCSD-SIO) and Tim Barnett (UCSD-SIO)

1100-1130 MODELING AND UNDERSTANDING NORTH AMERICAN
 DROUGHTS OF THE LAST MILLENNIUM
 Richard Seager (LDEO), Celine Herweijer (LDEO), and Ed Cook (LDEO)

1130-1200 DRY REGIMES IN HISTORICAL CLIMATE RECORDS OF THE
 WESTERN UNITED STATES

Cary Mock (University of South Carolina), Stephanie Dodds (University of South Carolina), Shelley Holmberg (University of South Carolina), Nicholas Doner (University of South Carolina), and John Derrick (University of South Carolina)

1200-100 LUNCH

TUESDAY AFTERNOON, March 28th

Moderator: Dave Wahl

SPECIAL SESSION: EPIC DROUGHTS OF THE LAST 2,000 YEARS

100-130 DECADAL DROUGHT CYCLES IN THE WESTERN UNITED STATES AND THEIR POSSIBLE ORIGINS
James Johnstone (U.C. Berkeley)

POTPOURRI IN TIME AND SPACE

130-200 DURATION AND MAGNITUDE OF MIDDLE HOLOCENE MEGADROUGHT RECORD FROM FLATHEAD LAKE, MONTANA AND PROBABLE LINK TO VOLCANIC FORCING
Michael Hofmann (University of Montana), **Marc Hendrix** (University of Montana), Johnnie Moore (University of Montana), and Michael Sperazza (University of Montana)

200-230 STUDYING CLIMATE WITH MAGNETIC MEASUREMENTS OF SEDIMENTS AND SOILS
Kenneth Verosub (U.C. Davis)

230-300 NEOTROPICAL CLIMATE DYNAMIC AT THE LATE GLACIAL-HOLOCENE TRANSITION RECORDED BY POLLEN DATA OF SEDIMENTS FROM THE CARIACO BASIN, CARIBBEAN SEA
Irina Delusina (U.C. Davis), Larry Peterson (Rosenstiel School of Marine and Atmospheric Science), and Howard Spero (D.C. Davis)

300-330 BREAK

330-400 AN 11,000-YEAR-LONG RECORD OF FIRE AND VEGETATION HISTORY FROM BATTLE GROUND LAKE, WASHINGTON
Megan Walsh (University of Oregon), Cathy Whitlock (Montana State University), and Patrick Bartlein (University of Oregon)

400-430	<p>PLANKTONIC FORAMINIFERA INDICATE A NEGATIVE RELATIONSHIP BETWEEN CALIFORNIA CURRENT AND NORTHERN HEMISPHERE TEMPERATURES UNTIL THE 20TH CENTURY</p> <p>David Field (MBARI), Chris Charles (UCSD-SIO), and Timothy Baumgartner (CICESE)</p>
430-500	<p>THE MADDEN-JULIAN OSCILLATION AND EXTREMES IN NORTH AMERICAN PRECIPITATION: RELATIONSHIPS AND FORECAST IMPLICATIONS</p> <p>Adam Stepanek (Naval Postgraduate School), Tom Murphree (Naval Postgraduate School), and Chuck Wash (Naval Postgraduate School)</p>
600-700	DINNER

TUESDAY EVENING, March 27th

Moderator: Scott Starratt

700-800	<p>THE EXTINCTION OF NORTH AMERICA'S PLEISTOCENE MAMMALS</p> <p>Donald Grayson (University of Washington)</p>
800-1000	POSTERS AND SOCIALIZING

WEDNESDAY MORNING, March 28th

Moderator: John Dracup

POTPOURRI IN TIME AND SPACE

730-830	BREAKFAST
830-855	<p>A 20,000 YEAR RECORD OF HYDROLOGIC AND CLIMATIC CHANGE AT BEAR LAKE, UTAH-IDAHO</p> <p>Katrina Moser (University of Western Ontario), James Kimball (University of Utah), Walter Dean (USGS, Denver), and Joseph Rosenbaum (USGS, Denver)</p>
855-920	<p>CLIMATE FLUCTUATIONS ON THE SUB-CENTURY SCALE – ARE WE ASKING THE RIGHT QUESTIONS?</p> <p>Wolfgang Berger (UCSD-SIO)</p>
920-945	<p>PROTOTYPE WEB TOOLS FOR THE WESTERN CLIMATE MAPPING INITIATIVE (WESTMAP)</p> <p>Andrew Comrie (University of Arizona), Kelly Redmond (WRCC), Mary Glueck (University of Arizona), and Hauss Reinbold (WRCC)</p>

945-1010	HYDROLOGIC IMPLICATIONS OF 20 TH CENTURY WARMING IN THE WESTERN U.S. Alan Hamlet (University of Washington), Philip Mote (University of Washington), and Dennis Lettenmaier (University of Washington)
1010-1030	BREAK
1030-1050	LOCAL MODES OF ATMOSPHERIC VARIABILITY: A CASE STUDY OF SOUTHERN CALIFORNIA Alex Hall (UCLA) and Sebastien Conil (UCLA)
1050-1110	FISH-CLIMATE IN THE CALIFORNIA CURRENT SYSTEM Jerrold Norton (NOAA-NMFS) and Janet Mason (NOAA-NMFS)
1110-1130	VENTILATION OF THE NORTH PACIFIC THERMOCLINE OVER THE PAST CENTURY: RADIOCARBON AND BENTHIC FORAMINIFERAL EVIDENCE FROM THE SANTA BARBARA BASIN Lydia Roach (UCSD-SIO), David Field (MBARI), Jenna Munson (UCSD-SIO), Thomas Guilderson (LLNL), and Christopher Charles (UCSD-SIO)
1130-1150	COASTAL AND EQUATORIAL OCEAN TEMPERATURE TRANSECTS – UPDATE Gary Sharp (Center for Climate-Ocean Resources Study) and Douglas McLain (Center for Climate-Ocean Resources Study)
1200-100	LUNCH

POSTERS

BRISTLECONE PINE PALEOCLIMATE MODEL FOR ARCHAEOLOGICAL PATTERNS IN THE WHITE MOUNTAINS OF CALIFORNIA

Linah Ababneh (LTRR, University of Arizona)

LATE HOLOCENE NORTH PACIFIC ATMOSPHERIC CIRCULATION AND EFFECTIVE MOISTURE IN THE SOUTHWEST YUKON TERRITORY, CANADA

Lesleigh Anderson (USGS, Denver)

GULF OF CALIFORNIA DIATOMS AND SILICOFLAGELLATES ARGUE FOR ENHANCED NORTH AMERICAN MONSOON DURING THE MEDIEVAL WARM PERIOD

John Barron (USGS, Menlo Park) and David Bukry (USGS, Menlo Park)

A LATE HOLOCENE RECORD OF FIRE, VEGETATION, AND CLIMATE FROM A

CIÉNEGA IN SONORA, MEXICO

Shawn Blissett (University of Utah) and Andrea Brunelle (University of Utah)

A DIATOM RECORD OF LATE HOLOCENE CLIMATE VARIABILITY FROM TWO LAKES IN THE NORTHERN ROCKY MOUNTAIN RANGE

Brandi Bracht (University of Nebraska), Sheri Fritz (University of Nebraska), and Lora Stevens (CSU Long Beach)

A COMPARISON OF VEGETATION AND FIRE HISTORIES FROM TWO SITES IN THE KLAMATH MOUNTAINS, NORTHWESTERN CALIFORNIA

Christy Briles (University of Oregon), Cathy Whitlock (Montana State University), and Patrick Bartlein (University of Oregon)

SEDIMENTARY CHARCOAL AS A PROXY FOR PAST DROUGHT

Andrea Brunelle (University of Utah)

A HIGH RESOLUTION REEXAMINATION OF A PORTION OF THE MISSION CROSS BOG, NEVADA RECORD FROM 4,000 - 2,000 YEARS AGO

Kelly Burkle (University of Nevada, Reno)

THE EFFECTS OF HOLOCENE CLIMATE CHANGE ON FISH POPULATIONS IN OWENS VALLEY, CALIFORNIA

Virginia Butler (Portland State University) and Michael Delacorte (CSU Sacramento)

CLIMATE AND FIRE RELATIONS IN THE SUBALPINE FOREST OF THE UINTA MOUNTAINS, UTAH

Nancy Carruthers (University of Utah)

LONG-TERM RESEARCH IN ENVIRONMENTAL BIOLOGY: CHANGES IN GENETICS, PHYSIOLOGY, AND ECOLOGY OF SIERRA WILLOW BEETLE POPULATIONS IN RESPONSE TO CLIMATE CHANGE

Elizabeth Dahlhoff (Santa Clara University), Nathan Rank (Sonora State University), and **John Smiley** (White Mountain Research Station)

SEDIMENT GEOCHEMICAL RECORDS OF PRODUCTIVITY AND OXYGEN DEPLETION ALONG THE MARGIN OF WESTERN NORTH AMERICA DURING THE PAST 2,000 YEARS: TELECONNECTIONS WITH THE ATLANTIC OCEAN AND CARIBBEAN SEA

Walt Dean (USGS, Denver)

SOME EXAMPLES OF NINETEENTH CENTURY HISTORICAL FLOOD RECONSTRUCTIONS FOR CALIFORNIA

Stephanie Dodds (University of South Carolina) and Cary Mock (University of South Carolina)
THE CHALLENGES OF DEVELOPING CLIMATE MONITORING INDICES FOR CALIFORNIA

Laura Edwards (WRCC-DRI)

LATE HOLOCENE PLANKTONIC FORAMINIFERAL ASSEMBLAGE SHIFTS IN SANTA BARBARA BASIN, CALIFORNIA: INDICATORS OF RAPID ENVIRONMENTAL CHANGE

Janine Fisler (University of Michigan) and Ingrid Hendy (University of Michigan)

APPLYING A PROCESS-BASED MODEL OF TREE-RING FORMATION TO HIGH ELEVATION TREES

Rebecca Franklin (LTRR), Malcolm Hughes (LTRR), Eugene Vaganov (V.N. Sukachev Institute of Forests), Kevin Anchukaitis (LTRR), and Michael Evans (LTRR)

DEVELOPMENT OF HISTORIC SEA SURFACE TEMPERATURE RECORD USING OXYGEN ISOTOPIC SIGNAL FROM ANNUAL GROWTH RINGS OF GEODUCK CLAMS

Michelle Goman (Cornell University), Lynn Ingram (U.C. Berkeley), and Are Strom (WDFW)

625 YEARS OF SALINAS RIVER STREAM FLOW RECONSTRUCTED FROM BLUE OAK TREE-RINGS

R. Daniel Griffin (University of Arkansas), David Stahle (University of Arkansas), Malcolm Cleaveland (University of Arkansas), Jesse Edmondson (University of Arkansas), and Michael Dettinger (UCSD-SIO, USGS)

LINKS BETWEEN DIURNAL CYCLES OF WIND AND TEMPERATURES IN COMPLEX TOPOGRAPHY

Mimi Hughes (UCLA), Alex Hall (UCLA), Rob Fovell (UCLA)

HIGH-RESOLUTION TEX₈₆ PALEOTEMPERATURE RECONSTRUCTION IN 1850-1987 A.D. VARVED SEDIMENT FROM THE SANTA BARBARA BASIN, CALIFORNIA

Carme Huguet (Royal Netherlands Institute for Sea Research), Arndt Shimmelmann (Indiana University), Lucas Lourens (Utrecht University), Jaap Sinninghe Damste (Royal Netherlands Institute for Sea Research), and Stefan Schouten (Royal Netherlands Institute for Sea Research)

VEGETATION AND CLIMATE CHANGES IN WESTERN USA DURING THE LAST 250,000 YEARS: THE RECORD FROM BEAR LAKE

Gonzalo Jimenez-Moreno (Northern Arizona University), Scott Anderson (Northern Arizona University), and Peter Fawcett (University of New Mexico)

TIMESCALE DEPENDENCE OF THE ENSO-PRECIPITATION TELECONNECTION IN THE WESTERN U.S.

James Johnstone (U.C. Berkeley)

SOUTHWEST DROUGHTS SINCE 250 B.C.: THEIR IMPACT ON ENVIRONMENTS AND EARLY CULTURES, AND ON DIRE PREDICTIONS OF FUTURE CLIMATES

Thor Karlstrom (USGS)

DROUGHT RELATED PROCESSES IN THE MOUNTAINOUS WESTERN UNITED STATES

Mark Losleben (University of Colorado)

LATEST PLEISTOCENE-HOLOCENE VEGETATION CHANGE AT BLUE LAKE, WESTERN BONNEVILLE BASIN, UTAH

Lisbeth Louderback (University of Nevada, Reno), David Rhode (DRI), Larry Benson (USGS), and Scott Mensing (UNR)

A HOLOCENE RECORD OF ENVIRONMENTAL CHANGE AND SEDIMENT SOURCE CONTRIBUTIONS TO A TIDAL SALT MARSH IN SAN FRANCISCO BAY, CALIFORNIA

Frankie Malamud (U.C. Berkeley), Michelle Goman (Cornell University), and Lynn Ingram (U.C. Berkeley)

EVALUATION OF HYDROLOGIC INDICES FOR FORECASTING WESTERN U.S. SEASONAL WATER SUPPLY

Edwin Maurer (Santa Clara University) and Andrew Wood (University of Washington)

ROCK GLACIERS AND PERIGLACIAL ROCK/ICE FEATURES IN THE CENTRAL-EASTERN SIERRA NEVADA: UPDATES ON CLASSIFICATION, MAPPING, CLIMATE RELATIONS, AND WATER MONITORING

Connie Millar (USDA Sierra Nevada Research Center), David Clow (USGS, Denver), Jessica Lundquist (NOAA), and Robert Westfall (USDA Sierra Nevada Research Center)

FOREST DISTURBANCE REGIME VARIABILITY ON THE WASATCH PLATEAU, CENTRAL UTAH, U.S.A.

Jesse Morris (University of Utah) and Andrea Brunelle (University of Utah)

USING PALEOECOLOGICAL TECHNIQUES TO ADDRESS SITE ABANDONMENT AT RANGE CREEK, UTAH

Stacy Morris (University of Utah) and Andrea Burnelle (University of Utah)

RECORDS OF THE LAST GLACIAL-INTERGLACIAL TRANSITION IN THE BONNEVILLE BASIN, U.S.A.

Shizuo Nishizawa (University of Utah)

HIGH RESOLUTION ANALYSIS OF SUBFOSSIL CHIRONOMIDS IN THE SIERRA NEVADA, CALIFORNIA PROVIDES EVIDENCE OF LATE 20TH CENTURY WARMING

David Porinchu (Ohio State University), Aaron Potito (Ohio State University), Glen MacDonald (UCLA), and Amy Bloom (Illinois State University)

TOO CLEVER TO BE UNDERSTOOD: IDENTIFYING PERIODS OF INCREASED ARIDITY IN SAN FRANCISCO BAY MARSH SEDIMENTS

Scott W. Starratt (USGS, Menlo Park)

LATEST PLIOCENE AND QUATERNARY DIATOM FLORAS OF THE LAKE TAHOE
BASIN, CALIFORNIA AND NEVADA, USA

Scott W. Starratt (USGS, Menlo Park)

SPATIAL INHOMOGENEITIES IN WINTER PRECIPITATION ANOMALIES IN THE
SOUTHWESTERN UNITED STATES

James Tamerius (University of Arizona)

CLIMATE VARIABILITY AND PREHISTORY IN THE SOUTHERN MAYA LOWLANDS

David Wahl (USGS, Menlo Park), Roger Byrne (U.C. Berkeley), James Johnstone (U.C. Berkeley), Richard Hansen (Idaho State University), and Thomas Schreiner (U.C. Berkeley)

INTER-HEMISPHERIC TELECONNECTIONS, ENVIRONMENTAL DISEQUILIBRIUM,
WIDESPREAD FIRE, AND SOIL EROSION DURING PERIODS OF ABRUPT CLIMATE
CHANGE THROUGH THE HOLOCENE, NORTHERN SIERRA NEVADA, CALIFORNIA,
U.S.A.

Steve Wathen (U.C. Davis)

RECONSTRUCTING PAST DISTURBANCE OF SPRUCE BEETLE (DENDROCTONUS
RUFIPENNIS) FROM A LAKE CORE SEDIMENT

Jennifer Watt (Northern Arizona University), Scott Anderson (Northern Arizona University),
and Ann Lynch (Northern Arizona University)

THE LAST 1,300 YEARS IN NORTHERN YELLOWSTONE NATIONAL PARK BASED ON
MULTI-PROXY DATA FROM CREVICE LAKE

Cathy Whitlock (Montana State University), Sheri Fritz (University of Nebraska), Brandi Bracht
(University of Nebraska), Lora Stevens (CSULB), Mitch Power (University of Oregon), Walter
Dean (USGS, Denver), and Joseph Rosenbaum (USGS, Denver)

WATERSHED-SCALE HYDROCLIMATIC TRANSITIONS ACROSS THE U.S.
CONTINENTAL DIVIDE

Erika Wise (LTRR)

AGE CLASS STRUCTURE OF PINYON WOODLANDS, CLIMATE VARIABILITY, AND
PREHISTORIC PINE NUT PROCUREMENT

Wallace Woolfenden (USDA Forest Service)